



— Before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments.

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

A SYSTEM AND METHOD FOR DISPLAYING THE OPERATION OF AN OBJECT ON A COMPUTER AND PURCHASING THE OBJECT

BACKGROUND OF THE INVENTION

5 This invention generally relates to online systems and methods, and more particularly, to systems and methods that display the operation of products and new technologies via a computer network such as the Internet.

 As the number of users on large computer networks such as the Internet continues to grow, electronic commerce is becoming increasingly important to the business world. At
10 present, numerous businesses advertise, perform electronic transactions and offer electronic payment methods on the Internet. This number is increasing rapidly because the Internet allows these businesses to operate internationally and have direct access to an extensive group of consumers.

 Unfortunately, some businesses are experiencing difficulty operating over the
15 Internet because potential consumers lack the ability to evaluate the products offered by these businesses. An illustrative example of this difficulty is exemplified by the healthcare product business.

 In the United States, the medical healthcare product industry is over 160 billion dollars annually and growing. Thousands of products are used in hospitals, outpatient
20 surgery clinics, physician's offices, and ancillary facilities. There are over 6000 hospitals and 750,000 physicians. Most physicians use the Internet regularly and it is predicted that most health care providers will have a presence on the Internet in the near future.

 However, online purchasing presently represents a small percentage of medical sales because most companies lack Internet web sites and those companies that do have Internet
25 web sites are not often frequented by potential consumers because these Internet web sites do not allow consumers to evaluate the company's products. Most Internet web sites only provide product lists, catalogue numbers, possibly a photo or illustration, and price. If a potential consumer requires more information on a product, the consumer would have to rely on a visit from a sales representative. While there are scattered alliances and methods
30 of purchasing via the Internet, there is lacking a central site that provides interactivity with

products for potential consumers and for companies that is simple for the consumer to use and for companies to rely upon.

These problems also exist in businesses outside the medical healthcare product industry. It is appreciated that any business that markets products or new technologies via the Internet to potential consumers in which the potential consumers will review the product information, operation, and instructions for use of the product will encounter the same problems as the medical healthcare product industry.

Thus at present, many potential consumers are unwilling to purchase products via the Internet because consumers are unable to evaluate how a product operates or have access to the product's instructions without having to rely on a visit from a sales representative. Thus, in order to allow electronic commerce to grow, there is a need to implement an online Internet service that allows potential consumers to review product information and instructions for product use, and to evaluate the product operation with functional interactively via the Internet. Additionally, there is a need to allow online purchasing of multiple products from multiple companies on a single Internet web site that displays how the products work and are used.

SUMMARY OF THE INVENTION

The above problems are solved, and a number of technical advances are achieved in the art, by implementation of a system and method for displaying the operation of a product on a remote computer via a computer network.

In accordance with the invention, a method for displaying the operation of a object (product) on a remote computer via a computer network is described. The method comprises the steps of accepting connection of the remote computer to a main server via the computer network, where the main server contains selectable information relating to the object including visual information of the operation of the object, and selecting the visual information of the object on the main server with the remote computer. The method additionally includes the step of transmitting the visual information of the object from the main server to the remote computer via the computer network.

Additionally in accordance with the invention, a system for displaying the operation of an object on a remote computer via a computer network is described. The system comprises a main server containing selectable information relating to the object including

visual information of the operation of the object, the remote computer connected to the main server via the computer network, and means for selecting the visual information of the object on the main server with the remote computer. The system also includes a means for transmitting the visual information of the product from the main server to the remote
5 computer via the computer network.

Still additionally in accordance with the invention, a method for selling at least one object having a function operation over a computer network is described. The method comprises the steps of receiving an object model, from a business, for display on a server and creating visual information from the object model. The method also includes the steps
10 of hosting the visual information on the server and linking a second server, associated with the business, to the visual information.

Also in accordance with the invention, a method for animating the operation of at least one functional part of an object is described. The method comprises the steps of inputting a digitized model into a computer system and identifying at least one part (sub-
15 model) of the digitized model corresponding to the at least one functional part of the object. The method also includes creating animated data of the at least one sub-model corresponding to the operation of the at least one functional part of the object and transmitting the animated data to a remote computer in signal communication with the computer system.

Further in accordance with the invention, a system for animating the operation of at least one functional part of an object is described. The system comprises a means for providing a digital model and a computer system for processing the digitized model. The system further includes a means for identifying at least one sub-model of the digitized model corresponding to the at least one functional part of the object and a means for
25 animating the at least one sub-model to correspond to the operation of the at least one functional part of the object.

Still further in accordance with the invention, a method for purchasing an object having a functional operation is described. The method comprises the steps of viewing, using a computer, the visual information corresponding to the functional operation of the
30 object and transmitting, using a computer, a request to purchase the object in response to viewing the visual information. The method further includes the steps of accepting the

request to purchase the object and receiving, at a time subsequent to the accepting of the request to purchase the object, a confirmation of sale.

Also in accordance with the invention, a method for selling at least one object having a functional operation via a computer network to a remote computer of a potential customer is described. The method comprises the steps of transmitting, using a computer, visual information of the functional operation of the at least one object to the remote computer and receiving from the remote computer, a request to purchase the at least one object in response to transmitting the visual information. The method further includes the steps of accepting the request to purchase the at least one object and transmitting a confirmation of sale in response to accepting the request.

Additionally in accordance with the invention, a method for selling objects having a functional operation, via a computer network, to a remote computer of a potential customer is described. The method comprising the steps of transmitting, using a computer, visual information of the functional operation of a plurality of objects to the remote computer, transmitting, using the computer, data to the remote computer, the data containing price information corresponding to the plurality of objects, and receiving from the remote computer, a request to purchase at least one of the plurality of objects. The method also includes the steps of accepting the request to purchase the at least one object and transmitting a confirmation of sale in response to accepting the request.

Further in accordance with the invention, a method for selling objects having a functional operation, via a computer network, to a remote computer of a potential customer is described. The method comprising the steps of receiving, using a computer, a request for visual information of the functional operation of an object from a client computer and transmitting, using a computer, the visual information to the remote computer operated by a client business. The method also includes the step of transmitting, using a computer, a trace signal to the remote computer.

Still further in accordance with the invention, a method for teaching the use of an object having a function operation is described. The method comprises the steps of transmitting a request from a first computer to a second computer, wherein the request is for information of the functional operation of the object and receiving, using the first computer, visual information corresponding to the functional operation of the object. The

method also includes the step of interacting with the visual information using the first computer.

Additionally in accordance with the invention, a method for selling at least one object having a functional operation from a server having a website, via a computer network is described. The method comprises the steps of creating an interactive map of the website and transmitting, from the server, visual information of the functional operation of the at least one object to the remote computer. The method also includes the steps of receiving from the remote computer, a request to purchase the at least one object in response to transmitting the visual information and accepting the request to purchase the at least one object. The method further includes the step of transmitting a confirmation of sale in response to accepting the request.

BRIEF DESCRIPTION OF THE DRAWINGS

The foregoing advantageous features of the invention will be described in detail and other advantageous features will be made apparent upon reading the following detailed description that is given with reference to the several figures of the drawings, in which:

Fig. 1 shows a functional block diagram for the system;

Fig. 2 shows a functional block diagram for the animation system block shown in Fig. 1;

Fig. 3 shows a flow diagram showing the process performed in association with the animation system of Fig. 2;

Fig. 4 shows a depiction of one potential animation page for use within the system;

Fig. 4A shows another depiction of one potential animation page for use within the system;

Fig. 5 shows a flow diagram showing the process performed by the system of Fig. 1;

Fig. 6 shows a flow diagram for the process performed in purchasing an object using the system of Fig. 1;

Fig. 7 shows a functional block diagram for implementing an online convention center in the system of Fig. 1; and

Fig. 8 shows one exemplary user interface for generating leads for third party vendors and providing an accounting to the system for generating such leads.

DETAILED DESCRIPTION

Fig. 1 shows a functional block diagram for a system 10. The system 10 includes a remote computer 100, a computer network 105, a client server 110, a server sub-system 115 and an animation sub-system 120. The remote computer 100, client server 110 and server system 115 are in signal communication with computer network 105 via signal connections 125, 130 and 135 respectively.

Remote computer 100 is preferably a general-purpose computer system such as an IBM compatible, Apple, or other equivalent computer (using a processor that may selectively be an Intel, AMD, Cyrix, Motorola 68XXX or PowerPC series, Compaq Digital Alpha, Sun, HP, IBM, Silicon Graphics, or other type of equivalent processor) that allows a potential customer to communicate with computer network 105. Computer network 105 is any computer network that allows multiple computer systems to communicate with each other such as a Local Area Network (LAN), Storage Area Network (SAN), Wide Area Network (WAN), alternative Intranet, Extranet, or the Internet. The client server 110 is preferably a general-purpose computer system such as an IBM compatible, Apple, Unix type workstation, or equivalent computer (using a processor that may selectively be an Intel, AMD, Cyrix, Motorola 68XXX or PowerPC series, Compaq Digital Alpha, Sun, HP, IBM, Silicon Graphics, or other type of equivalent processor) that allows a business offering a product or new technology to communicate with the computer network 105. Of course, the remote computer 100 and client server 110 need not be the same type of general-purpose computer. Both the remote computer 100 and the client server 110 preferably contain a network interface 135 and 140, respectively, that allows for communication with computer network 105. Network interface 135 and 140 may selectively include hardware and any software capable of communicating with the computer network 105. Examples of the software would be any LAN, SAN, WAN, alternative Intranet, Ethernet capable or Internet compatible software program such as Novell, Windows, Unix, Netscape Navigator, Microsoft Internet Explorer, Mosaic, UP.BROWSER, or similar.

The server sub-system 115 is preferably a computer system that comprises a main server 145 and selectively an animation server 150 and a full motion video server 155. The animation server 150 and full motion video server 155 are in signal communication with the

main server 145 via signal connections 160 and 165 respectively. It is appreciated by those skilled in the art, that both the animation server 150 and full motion video server 155 may selectively be physically separate systems in signal communication with main server 145 or sub-components of an integrated computer system. If the main server 145, animation
5 server 150 and full motion video server 155 are physically separate systems, the systems may be selectively connected to each other via close proximity connections, LAN, WAN, SAN, internal bus, or other network, by means of firewire, fibre channel, fiber-optics, SCSI (Small Computer System Interface), FDDI (Fiber Distributed Data Interface), Ethernet or similar (such as shown by signal connections 160 and 165) or via computer network 105
10 (i.e. Internet or WAN) (such as shown by signal connections 170 and 175). Additionally, it is appreciated by those skilled in the art, that the main server 145, animation server 150, and full motion video server 155 may coexist on a single integral hardware system, and may be selectively differentiated by specialized server-side software that may selectively support future transfer protocols which may also be utilized.

15 The main server 145 provides at least visual information of the operation of an object, such as a product or new technology, to the remote computer 100 via computer network 105. The object on display may be either that of a product or service. A product may typically be a physical object or collection of physical parts, assembled for the purpose of accomplishing a specific task. A service may be a demonstrated method of providing
20 utility or achieving a desired result, or similar. For example, a company may have an intellectually protected method of providing a service that they want to demonstrate to potential customers. In this manner, the company may be able to show that their service is superior to the competition by means of an interactive flowchart or similar presentation. The visual information may selectively be animation information, full motion video
25 information, or both, of the operation of the object. The main server 145 is preferably a general-purpose computer system such as an IBM compatible, Apple, Unix type workstation, (using a processor that may selectively be an Intel, AMD, Cyrix, Motorola 68XXX or PowerPC series, Compaq Digital Alpha, Sun, HP, IBM, Silicon Graphics, or other type of equivalent processor) or equivalent that allows a functional operation service.
30 provider to communicate with computer network 105. The functional operation service

provider is preferably a business that provides computer simulated operation information of functional objects such as products or new technologies.

The animation server 150 and full motion video server 155 are preferably special computer systems that have been optimized to process animation and full motion video information respectively. It is appreciated by those skilled in the art that the visual information of operation of the object may selectively be produced either by the main server 145 or a combination of the main server 145, animation server 150, and full motion video server 155.

As an example, if a potential customer is interested in a product or new technology offered by a business via client server 110, the potential customer connects the remote computer 100 to network interface 140 on client server 110 via computer network 105 using the network interface 135. For example purposes, computer network 105 will preferably be the Internet, network interface 140 on the client server 110 will be a web page or web site (and supporting hardware), and the network interface 135 on the remote computer 100 will be a web browser (and supporting hardware).

Once connected to the web page on client server 110, the potential customer is able to browse the information on the web page relating to the product or new technology of interest. The web page will contain selectable target (i.e. link, button, or interactive image) 180 corresponding to a computer location at which operation of the product can be viewed. For instance, target 180 will select either animation, full motion video data or other interactive means that show the operation of the product. It is appreciated by those skilled in the art, that target 180 (e.g. a hyperlink) may be a software selectable link that redirects the signal connection between the remote computer 100 and a file resource on client server 110 via network interface. In this instance, once the potential customer selects target 180, the link will redirect the signal connection of remote computer 100 from the client server 110 to the server sub-system 115 via the Internet. Alternatively, target 180 may be a software selectable link that induces a command that is interpreted by software on at least one of the client server 110, remote computer 100, or the main server 145.

Once connected to the server sub-system 115, the main server 145 will transmit either animation, full motion video data or both to the remote computer 100 based on the type of link 180 selected by the potential customer. If the business offering the product

requires specialized equipment to optimize the transfer rate of the animation or full motion video data of the operation of the product from the server system 115 to the remote computer 100, specialized systems such as animation server 150 and full motion video server 155 may selectively be employed. The servers may include at least one of a

5 multitude of software or hardware systems for information transfer. These systems may include, but are not limited to, web server software, operating systems (such as Windows 3.11/95/98/NT, Solaris, Linux, Unix and similar), processing systems (using a processor that may selectively be an Intel, AMD, Cyrix, Motorola 68XXX or PowerPC series, Compaq Digital Alpha, Sun, HP, IBM, Silicon Graphics, or other type of equivalent

10 processor), storage systems (such as SANs, hard drives, and similar), secure transfer systems (such as Secure Socket Layer and other encryption protocols), routers, and specialized delivery software (such as RealSystem streaming media software and similar). An example of a specialized system may be a system utilizing Macromedia's Flash or Shockwave for two-dimensional presentations, and Shockwave combined with Shells

15 Interactive's 3D Dreams (or instead Shout3D, Cosmo, Metastream or similar software) for three-dimensional presentations. In these cases, a presentation is developed using the appropriate authoring tools (such as Macromedia Director, Flash or Discrete 3D Studio Max) on animation sub-system 120. The presentation is published and placed on the host server (i.e. the animation server 150, or the main server 145). The viewer, using network

20 interface 135 in combination with the Flash/Shockwave Player on remote computer 100 can view and interact with the multimedia presentation.

Once the animation or full motion video data is transmitted to the remote computer 100, the potential customer is able to simulate the operation of the product or new technology in a real-time display via the remote computer.

25 It is appreciated by those skilled in the art, that another example of the invention allows the potential customer to connect the remote computer 100 directly to server system 115 via the Internet without having to go to client server 110. This allows the potential customer to view the operation of multiple products from multiple companies listed on the server sub-system 115. Additionally, the business controlling and operating the server sub-

30 system 115 is able to identify and log the activities of the potential customer.

As an example of presenting a website on the main server 145, the website is preferably created by a design or development team. The website consists of several files. Each page of the site may have a corresponding text file. The text files are written in an Internet compatible language (such as hypertext markup language (HTML, or Dynamic-HTML "DHTML", Extensible Markup Language "XML", or similar). These pages may be produced by a layout program such as Microsoft FrontPage, Adobe GoLive, Macromedia DreamWeaver, Astound Dynamite, mBed Interactor, NetObjects Fusion or the equivalent. The text file (also known as "code") may selectively be placed in a directory on a hypertext transfer protocol (HTTP) server with any adjoining images and presentations or using a web browser, information can be retrieved using XML from ASP (Application Service Provider) on whose resides the object and demonstrations. The HTML file may selectively contain references to Common Gateway Interface (CGI) scripts, Java applets, or similar website enhancing utility. These references order the server to locate the script and run it when called upon. The website is then broadcast on the Internet via the World Wide Web. The server is itself an Internet service provider (ISP) connected to the Internet or the server is connected to an ISP. It will be appreciated by those skilled in the art that other programs or protocols such as XML, Cascading Style Sheets (CSS), SMIL, RealNetwork's software or subsequent future protocols may also be employed.

Typically the potential customer has a connection to the Internet via a modem or terminal (which translates the signals sent through telephone lines, cable, satellite, optical, or wireless communication into digital information to be used by the remote computer 100). The information sent to the potential customer includes the HTML file (or equivalent), images, and any necessary scripts and Java applets. The remote computer 100 has software such as a browser that reads the incoming data and displays it on an associated monitor.

Fig. 2 shows the animation sub-system 120 of Fig. 1. The animation system 120 consists of means for providing a digital model 185 (which may be an image) of an object 190 and a computer system 195. For instance, the means for providing a digital model 185 of object 190 may selectively include one or more of the following: (1) a digital camera; (2) an analog camera for producing hard copy photos; (3) a video camera; (4) a Computer Aided Design (CAD) system capable of producing models in two and/or three dimensions,

such as Pro/Engineer, SolidWorks, SolidEdge, IronCAD, AutoCAD or similar; (5) a two dimensional digitizer such as scanner; (6) software such as PhotoWorks or Adobe PhotoShop; (7) a three dimensional digitizer such as a three dimensional laser scanner or tracing device in combination with surfacing software; and/or other input means. The computer system 195 may consist of a processor 200, a three-dimensional to two-dimensional (or vice-versa) model transformer 205, a memory unit 210, and a storage unit 215.

The computer system 195 is preferably a general-purpose computer system such as an IBM compatible, Apple, Unix type workstation, or equivalent type computer that allows for image and three-dimensional model processing. The processor 200 may selectively be an Intel, AMD, Cyrix, Motorola 68XXX or PowerPC series, Compaq Digital Alpha, Sun, HP, IBM, Silicon Graphics, or other type of equivalent processor. The model transformer 205 is preferably either a hardware component (such as a graphic card or scanner) or software program (such as SolidWorks with PhotoWorks, 3D Studio Max, FormZ, Lightwave, Maya and other equivalent programs) designed for converting a three-dimension digital model into a two-dimensional digital image or vice-versa. Additionally, a software program such as Adobe Streamline or similar may be utilized to optimize the performance of the two-dimensional image on the web by converting the bitmap image into a vector-defined graphic. Similarly, a three-dimensional model may be optimized by transforming it into a vector, curve, or polygon-defined model, or by employing a compression scheme or algorithm. The memory unit 210 and the storage unit 215 are preferably standard type units such as a Random Access Memory (RAM) module and a hard disk respectively.

The three-dimensional model and corresponding presentation may take the form of at least one of several file and/or presentation types. These presentation types are distinguished by the amount of information provided to the viewer, and each requires a different means of production and implementation. The simplest means of three-dimensional imagery is that of "flat" three-dimensional images. In this case, an image is rendered by a three-dimensionally capable software package. A model is generated and an image or series of images (including animation) can be produced by rendering the digitally constructed scenes or objects. The image appears distinctly three-dimensional by exhibiting

lighting, shading, and shadows, and creating the appearance of depth and a distant background. The flat images are only two-dimensional themselves, but accomplish the appearance of a three-dimensional perspective.

Another method of three-dimensional imaging is with an "immersive" three-dimensional presentation. In an immersive three-dimensional display, a geometrically defined three-dimensional model is presented in a form that may be visually manipulated and interacted with by the viewer. It can be manipulated in the sense that the viewer can pan, rotate, and zoom the view of the model, thereby achieving a full 360° perspective of the object in three-dimensional space. For example, the data describing the model may be sent from the server sub-system 115, Fig. 1, to the remote computer 100, and the object 190, Fig. 2, may be interacted with and manipulated in real-time by a program or script via network interface 135, Fig. 1. Immersive three-dimensional displays can also be mimicked with a series of flat three-dimensional images. As an example, a series of flat images rendered from numerous perspectives can be applied to fabricate a presentation in which intermittent frames represent the views from various angles that may be encountered when a user pans or rotates the model. Immersive three-dimensional images may also take advantage of compression and rapid transfer methods or utilities such as that which is used in Vuent's Envision3D.

An alternative method is a "virtual reality" three-dimensional display, which presents the viewer with an environment that mimics reality by conveying that the user is inside of the digitally created environment. This type of presentation can be produced through a variety of methods such as generating offset images in the viewer's retina by means of projected images, viewing altered images through filtered lenses (including polarized), three-dimensional systems such as that of C3D, or similar means. At least one of the aforementioned three-dimensional and two-dimensional presentation methods may be selectively employed.

The computer system 195 also has software 220 to aid in identifying the key functional parts of object 190, creating a listing of the parts database 225, and generating the animated sequences of the key functional parts 230. The key functional components (also known as "sub-models") of the object 190 may be independently scanned or translated for use in either two-dimensional or three-dimensional presentations.

Additionally, the software (such as Macromedia Flash and Director Internet Studio) may be used to identify the key functional parts of the object 190 and may be used to highlight portions of a computer graphic model. In order to optimize the transfer of information from clients, a form may be provided on the website of the main server 145 that allows the client to submit files for use or inclusion in the animation of an object 190. This form may be capable of generating information as text or otherwise to be submitted to the database 225 for management purposes. The database 225 may be operated and edited with a program such as Microsoft Access, Excel, or similar tool. The files could also be transported in any traditional manner. The software to generate the animation sequences of the key functional parts 230 is preferably a two-dimensional or three-dimensional animation and/or image processing program such as 3D Studio Max, Macromedia Flash, Macromedia Director, Macromedia Fireworks, Lightwave, Java -3D, FormZ, Infini-D, Brice, Poser, Quick3D, 3D Dreams, Shout3D, Cosmo (now SGI), Fountain Pro, SolidWorks, SolidWorks Animator, AutoCAD, Pro/Engineer, Immersive Design's Interactive Product Animator, Adobe Photoshop, Adobe ImageReady, or equivalent software. It is appreciated by those skilled in the art that some of the aforementioned software programs are better suited to particular tasks that may include two-dimensional presentations, flat three-dimensional presentations, immersive presentations, and interactive presentations. It is also appreciated by those skilled in the art that the software controlling the processing of the computer system 195 may selectively comprise numerous programs, software modules and applications (such as an operating system, drivers, and software applications) operating in combination to produce the animated sequences of the product.

It is appreciated by one skilled in the art that the animation system 120 may also selectively receive three-dimensional information for the object from a third party (not shown). Preferably, the third party will provide a file in a standard format that contains the three-dimensional information for the object. The standard formats for such files may selectively include IGES, STL, dxf, 3DS (3D Studio Max format) or VRML (Virtual Reality Modeling Language) files. In this manner, the file may be manipulated and rendered employing software for file translation (such as SolidWorks, 3D Studio Max, Cosmo, FormZ or others) which produces corresponding two-dimensional and/or three-dimensional models. The three-dimensional object is then compiled by a program such as

Cosmo software, Shout3D, 3D Dreams, Fluid3D, Envision3D or other programs valid for transfer via the Internet and the information is then placed on the main server 145 as a part of the website.

Fig. 3 shows an example operation of the process performed in association with the animation system 120 of Fig. 2. In step 235, Fig. 3, the object 190, Fig. 2, is scanned or downloaded to create a digitized model of the object 190, Fig. 2, employing the means for providing a digital model 185. The three-dimensional scanning device may include equipment by companies such as Mensi, Cyra, and Paraform, among others. In step 240, Fig. 3, the digitized model is input into the computer system 195, Fig. 2.

In step 245 (optional), Fig. 3, if model transformation is desired, the digital model is transformed. As an example, if the digitized model is a three-dimensional image, the image is transformed into a two-dimensional image by the model transformer 205, Fig. 2, or vice-versa. If instead no transformation is desired, the process continues to step 250, Fig. 3. The client will preferably supply a three-dimensional model that can easily be rendered into a two-dimensional image, such that a two-dimensional and/or a three-dimensional presentation can be generated in accordance with the invention.

In step 250, the key functional parts of the digitized object are identified. This identification is preferably done by obtaining individual models for each functional component of the object 190, Fig. 2, from the client. Then each key functional part represents a component to be interactively manipulated in the presentation of the object 190. If the presentation is two-dimensional (i.e. a vector graphic based Flash file), then the three-dimensional model may be rendered at the desired perspective(s) to produce the desired image(s). In step 255, a list of the key functional parts of the object with respect to their function and corresponding location in the digital presentation is generated.

In step 257 (optional), Fig. 3, if it may be desirable to depict the use of a particular model such that its parts can only be moved in a certain sequence, that sequence may be provided to the system in this step. For instance, where the system is used to teach a new procedure or instructions on correct use of an object, it would be desirable to constrain the order in which a student using the model of the device can manipulate that device. In this way, for instance, the appropriate manipulation and/or assembly of the instrument may be trained.

In step 260, the animation sequences of the sub-models (the key functional parts) of the object are generated. In one example, a procedure for repairing a model could be shown by using the animation sequences to show the assembly and/or disassembly of various part of the model. By coupling this animation with the optional required order for part actuation (see step 257), the system can be utilized to walk someone through the repair or modification of the model (e.g. a VCR, TV set, bicycle, etc.).

In step 265, software links/targets are created that enable the key functional parts of the digitized model of the object to be animated interactively by selectively choosing the location of a key functional part of the object corresponding to an animated sub-model. In step 267 (optional), predefined views of the object may be set and selected for later display. For instance, the model can be rotated into side views, top views, and perspective views and these views saved for user selection by the click of a button (see reference number 241 in Fig. 4A). In another example, views of the model with various parts actuated can be saved and played in sequence or individually to facilitate showing the user the full range of use of the model without having to rely solely upon the user's ability to manipulate computer graphics. These various views can be combined and other views developed for use with the present system.

As an example, this process allows a potential customer to simulate the operation of a product that is preferably displayed in three-dimensional graphics. The three-dimensional presentation is preferably fully interactive. Programs such as 3D Dreams and Shout3D, among others, may be selectively employed to provide this kind of content-rich interactive three-dimensional presentation.

As another example, this process allows a potential customer to simulate the operation of a product that is displayed and animated in three-dimensional graphics. In the case of the digitized model being a three-dimensional model, once the potential customer selects a linked animated sub-model (key functional part) of the object. The selected sub-model will appear to move in three-dimensional space. The three-dimensional presentation may implement real-time processing of three-dimensional data. Programs such as 3D Dreams, Cosmo Player, and Shout3D, among others, may be selectively employed to provide this kind of content-rich interactive three-dimensional presentation.

If instead the digitized presentation is a two-dimensional, the system and process automatically converts that portion of the two-dimensional image, selected by the viewer, to the corresponding two-dimensional animation, which simulates the operation of the key functional parts. After the potential customer de-selects the linked animated sub-model, the graphics revert back to the original two-dimensional image (The object may all be in three – dimensions). This may be seamlessly achieved by employing programs such as Flash or Shockwave, among others. If implemented, the two-dimensional presentation may be identical to the three-dimensional presentation except that the display is limited to one perspective (flat 3D image). To accelerate the process of transmitting information via the Internet, vector graphics may be utilized with programs such as Flash, as previously stated.

In another example, by using animation to show the assembly and/or disassembly of parts of a model and providing required ordering, the system can be used to teach various procedures ranging from electronics repair to medical procedures to car repair to archeology.

As an example of a product display, Fig. 4 is a screen shot of a laparoscopic instrument as displayed on the remote computer 100 using an Internet browser such as Microsoft Internet Explorer or Netscape Navigator. The laparoscopic instrument is either displayed as a three-dimensional or two-dimension computer model. The laparoscopic instrument is a functional computer model having the following functional parts: a handle 231, a trigger 232, a rotation knob 233, a pivot knob 234, and an end effector 236. Each of these functional parts has a sub-model associated with it.

In one approach, the handle 231, pivot knob 234, and rotation knob 233 would have boxes surrounding their respective parts (not shown). In accordance with the invention, these parts could also be identified as targets by flashing, fluctuating in tint or color, having distinct colors, displaying a visual perceptible outline, or by other similar means. The animation of each functional part could be activated by passing the cursor or other input device over the predefined target area, by a mouse button down input, a mouse button up input, or by similar user actuable signal. For instance in the present example, if a potential customer places a pointing or input device (such as a computer mouse cursor) over the box surrounding the trigger 232, the end effector 236 responds in a fashion that simulates the real-world function of the device, by closing its blades. If instead the

potential customer places the input device over the box surrounding the pivot knob 234, the end effector 236 responds in a fashion that simulates the real-world function of the device, by articulating to 90° and then back to its original position. If the potential customer places the input device over the box surrounding the rotation knob 233, the end effector 236 responds in a fashion that simulates the real-world function of the device, by rotating about the axial axis 360°. The simulation of a product may include animation that actuates a sub-model and then reverts back to its original position and/or status, or the presentation may be designed to allow partial movement or alterations to a sub-model without reverting the sub-model to its original state. In addition, in order to truly simulate an object, sub-models may move or interact in a manner that is dependent on the position or status of other interactive components. This type of programmed interactivity may be accomplished with programs such as Flash, Director, and Shout3D, among others.

In another example of a product display, Fig. 4A is a screen shot of the same laparoscopic instrument 234 as in Fig. 4, which is also displayed on the remote computer 100 with an additional control panel 240. The control panel 240 includes view selection buttons 241, view animation buttons 242, title bar 243 and an instructional text section 244. Each of these control sections is optional with their various advantages being understood as follows. The view selection buttons 241 provide various perspective views of the object. Each view may have associated therewith a predefined title, which would then be displayed in the view title bar 243. Instructional text section 244 is provided with various text segments explaining the construction, manipulation and/or assembly of the displayed object and/or a procedure associated therewith. If predefined views of the object were defined in step 267 (Fig. 3), then, as shown in Fig. 4A, the instruction text may include hyperlinks (or other similar connection) to display a predefined view associated with that link (and presumably the instruction). By selecting view selection buttons, a different perspective of the predefined view(s) is displayed. The ability to zoom may also be provided. The view animation buttons traverse through each predefined view in order. For instance, by pressing the "play" button each of views "Step 1" "Step 2," "Step 3," etc. would be displayed seriatim until the sequence is finished or the "stop" button is actuated.

Alternatively, the views may also be chosen independently from the play button because the play button (or function) may run the animation sequences through the steps of

instructions, assembly and/or procedure. These steps may be chosen independently such that the system allows random section of animation sequences. The animation sequences may run steps at a time or all at once, or from any chosen point in time. The views may be utilized while the animation sequences are running and allow viewing the 3D object from various predefined perspectives. Additionally, functional buttons (not shown) may also be utilized in conjunction or replacement of the play button to play the animation sequences. The system allows a multitude of variations in playing the viewing the animation sequences because the system is able to store the last function performed. Using these approaches, the instructions take on an interactivity where desired.

As an example, a wide range of product or service types may be demonstrated on the website in an interactive display. As discussed, a product's display may embody images and other media to simulate its physical functionality. Similarly, a service may be represented by charts, graphs, symbols, images, and component models working interactively. In addition to these types of presentations, the disclosed invention may also consist of a method of displaying software functionality. In this scenario, a software product may be portrayed by means of an interactive demonstration, a limited functionality emulator, or even a fully functional program. An interactive demonstration may simply be a multimedia display such as a Flash or Shockwave presentation that represents the actual user interface of the particular program. An emulator might be very similar to a downloadable trial version of a software package, but in this instance, a minimum amount of information is transmitted to the user's computer. The software may be fully functional if desired, or it may only resemble the real product in appearance. To protect the software developer's product, the demonstration may be limited in functionality such that it only displays enough information to convey the purpose and capabilities of the software product. As an example, the software emulator may not be capable of opening, saving, or printing files. Alternatively, it may only function with a demonstration file or sample. In addition, the emulator may transmit data in a secure transfer mode, so that the software code is protected from user's who may attempt to steal the technology. As an example of a method of emulating a software program, a portion of the program or the program in its entirety may be translated to an Internet compatible language, such as Java, ActiveX, or similar language or code. Then, the program may be sent to the user's remote computer

100, Fig. 1, or terminal for viewing. If the program is a substantially large file, then a limited portion of the software may be sent and thereby emulated. Alternatively, the original software program may be specially edited or formatted for transfer via the Internet. In this case, the software may be segmented such that the portion that is translated and sent to the user's remote computer 100 is the bare minimum necessary to display the visual content associated with the program. The other segment(s) may be retained on the main server 145 such that all processing due to the emulator's demands are accomplished on the server itself. Also, the software package may be written by the developer to specifically function in this manner. In essence, the software could transmit data to be displayed on the user's remote computer 100 and transfer commands via the Internet, while the application itself is stored and run on the server 145 computer. Accordingly, the invention disclosed herein may selectively employ similar means of information transfer for the purposes of demonstrating a software product.

Fig. 5 shows the process performed by the system 10 of Fig. 1. In step 270, Fig. 5, remote computer 100 is selectively connected to main server 145 via computer network 105. Optionally, in step 275 remote computer 100 is selectively connected to client server 110, via computer network 105. In optional step 280, Fig. 5, a customer on remote computer 100 selects the visual information of a product listed on client server 110. Selection of the visual information is facilitated by selecting a software link 180 on client server 110 that redirects remote computer 100 to main server 145. In step 270, remote computer 100 is selectively connected to main server 145 via computer network 105.

In step 285, remote computer 100 selects the visual information of a product listed on main server 145. If remote computer 100 was re-directed from client server 110 in response to the selection of link 180, the selection of the visual information of the product listed on main server 145 is automatic. The process then continues to step 290, Fig. 5.

If the business offering the product requires (and is willing to pay a fee) specialized equipment to optimize the transfer rate of the animation or full motion video data of the operation of the product from server system 115 to remote computer 100, specialized systems such as animation server 150 and full motion video server 155 may selectively be employed. In this case, if the remote computer 100 selects animation the process continues to step 295, Fig. 5, and main server 145 is connected to animation server 150 via either

signal connections 160 or 170 and, in step 300, Fig. 5, the animation information of the product is transmitted from the animation server 150 to main server 145. The process then continues to step 290, Fig. 5.

5 If instead, remote computer 100 selects full motion video the process continues to step 305 and the main server 145 is connected to the full motion video server 155 via either signal connections 165 or 175 and, in step 310, Fig. 5, the full motion video information of the product is transmitted from the full motion video server 155 to the main server 145. The process then continues to step 290.

10 In step 290, Fig. 5, the visual information of the operation of the product is transmitted from the main server 145, Fig. 1, to the remote computer 100 via computer network 105. Finally, in step 315, Fig. 5, the visual information of the operation of the product is displayed on the remote computer 100, Fig. 1, and the process ends.

Fig. 6 is an example flow diagram of process of purchasing the object by the potential customer. Initially, the process begins by either connecting the remote computer 15 100, Fig. 1, to the main server 145 or the client server 110. If connecting to the main server 145, in step 310, Fig. 6, the remote computer 100, Fig. 1, is connected to the main server 145, via the computer network 105 as discussed above. The process then continues to step 315, Fig. 6.

20 If connecting instead to the client server 110, Fig. 1, in step 320, Fig. 6, the remote computer 100, Fig. 1, is connected to the client server 110, via computer network 105. Once the potential client selects the visual information (such as animation or full motion video) with selectable link 180, Fig. 1, corresponding to the object, in step 325, Fig. 6, the process connects the remote computer 100, Fig. 1, to the main server 145 in step 310, Fig. 6, as discussed above.

25 In step 315, the potential customer views the visual information, on the remote computer 110, corresponding to the functional operation of the object. Once the potential customer determines that the object functions in a way that is satisfactory, the potential customer places an order to purchase the object in step 330 by transmitting a request to purchase the object from the remote computer 100 to the main server 145. Once received, 30 the main server 145, accepts the request in step 335 and the purchase is complete. In step

340, the main server 145 sends an acceptance to the request for purchase from the potential customer to the remote computer 100. The process then ends.

Another example of the invention is for educational purposes. The invention allows a potential customer to study the use of operation of an object in real-time. It is

5 appreciated that applications of the invention would include use in hospitals, medical schools, engineering schools, high schools, elementary schools, and the equivalent.

Viewing an object in operation educates a potential customer about the functions and utilities of the object in the performance of a task that later may lead the potential customer to purchasing the object. For example, object operation may selectively show how to use

10 an instrument in surgery, which in turn becomes a sales tool for potential customers. With this means of instruction other forms of instruction to educate the potential customer about the use of an object may selectively be combined with other educational formats such as articles text and online communications. In this respect, educational formats utilizing an interactive presentation may include but are not limited to step by step procedures and/or
15 guided procedures, virtual scenarios, setup or assembly instructions, programmed audio instructions or procedures, and commentary regarding the product or service.

Another example of this invention may take the form of an online convention center. In this scenario, the website represents an electronic version of a convention, where companies may place their products, provide information about their services, and
20 showcase new technologies. In this online convention center, numerous industries may be represented.

The site may be navigated in several ways, allowing the user to direct their attention to the products that most interest them. One method of navigation permits the user to view an interactive map of the site. The map is similar to that of a traditional map, and it may
25 display the names of all companies represented or all products available to view. There may be one map for each industry, or other categories. Utilizing this map, a user can preferably zoom in and out and locate products in "virtual booths." The potential customer may then select the company, product category, or specific product that they would like to view directly on the interactive map. Similar to a directory of hyperlinks or an imagemap,
30 this interactive map then directs the user to the desired page on the website or to client websites. In one instance of this navigation tool, the interactive map is displayed with

vector graphics, thereby allowing quick and easy manipulation of the text and graphics on the map (for both the user and the developer). This map may also allow additional interactivity such as animated menus, and instantaneous access to new information on the page. For example, this interactive map could occupy its own small window, and the potential customer could explore the site using this special window. On the map, special tools such as a magnifying glass (in place of the cursor) may selectively allow the user to explore the entire convention floor, zoom in on a company or product of interest, click on a company information button, receive instant information on that company in the same window, then click on the company's directory of products button and be taken in the main window to that portion of the site. In another instance of this map, a traditional convention hall is simulated in the site. As an example, the convention website contains a Virtual Reality Modeling Language (VRML) file that when viewed produces a three-dimensional virtual world containing booths for companies and products. Using a program such as Cosmo, the viewer may "walk through" the site and visit the booths that interest them. Navigation of the site may also contain traditional hyperlinks, directories, and search methods.

In accordance with this online convention example, each product or service description page may have a recognizable format that is repeated throughout the site, such as the example demonstrated in Fig. 7. In one implementation of this format, a page consists of four main segments. The first segment consists of a frame or series of buttons that provide links to other parts of the site and may include links to the manufacturer or distributor's site pertaining to the particular interactively demonstrated object. This part of the page may also selectively contain banner advertisements and the logo of the manufacturer or distributor. The second segment of the site is the main feature of the page. This segment contains the interactive presentation of the product or service as already described herein. The third segment of the page may consist of a graph, chart, table, or other informative display(s) that relate to the product or service. The display(s) may be interactive, thereby allowing users on the site to rate the presented object. The display that corresponds to the users' input may be regulated such that only users who are registered or have provided a unique e-mail address (connected with a user account on an ISP) may provide input. In this way, the display of user ratings is not falsely manufactured or altered

by companies. The third segment of the page is that of a refereed user forum. This segment may contain regulated text from users as well as a "guest speaker" portion. The guest speaker portion may selectively contain an article, video, and/or procedural demonstration from someone skilled in the use of the product or service. The company whose product or service is on display may suggest this person. A short biography may also be included to help validate this person's knowledge. The rest of the forum may selectively contain a bulletin board, whereby users may post commentary. Additionally, the system may allow users to select commentary and email it to themselves or another person(s). The online convention may also have a database that stores user profiles and may keep note of the commentary that each user highlights (selects). Highlighting a comment may be done by means of depressing a radio button, or similar means.

In addition, an incentive may be provided to encourage user input. As an example, a raffle may be held for every 1000 entries, or other specific number of entries. An entry is provided each time a user provides a comment or rates a product or service. Raffles may be held independently for each product or service page, each chart or display, each commentary, each company, or similar category. Awards may be provided that may include a credit towards a product or service on the site, or even cash, or similar award.

Fig.7 is an example of how an online convention could be organized. In this example, the homepage 345 has five links (in the form of buttons, targets, or text) on it that may selectively be employed in the website. These links are an "about" link 350, a "login or register" link 355, a "menu" link 360, a "map" link 365, and a "search" link 370. Each of these links directs the user to a new page (which may be portrayed in a browser as a layer or window or similar) in the website. The about link 350 takes the user to an about page 375, which describes the company and the format of the website, and may also provide instructions and other useful information. This about page 375 also provides links that allow the user to return to the homepage 345 or move to other parts of the site, as illustrated by the arrows. The arrows dictate the direction of a link (one-way) or the allowable interaction between pages (a two-sided arrow). The blocks on Fig.7 typically represent pages. The homepage 345 contains boxes that represent the possible buttons on that page. A box within a box suggests a directory.

On the homepage 345, the login or register link 355 may direct the user to a register page 380 that allows users to register themselves on the site for future reference and log in purposes. The registration may be utilized in numerous ways. For example, a potential customer may need to be registered in order to place a comment in a forum or to purchase a product or service. The online convention is preferably a free service to potential customers who want to view the site, but registration may also imply a subscription service whereby users pay a fee for access to the website. The registration page would allow users to submit information, preferably using a form and possibly with the implementation of a secure transfer mode. As shown in Fig. 7, the register page 380 may contain links permitting the user to move to a different page on the site.

As illustrated in Fig. 7, the homepage 345 may accommodate three navigation links, the menu 360, search 370, and map 365. Each of these links permits the user to locate a desired page within the site. Both the menu 360 and search 370 links may allow the user to selectively locate a page within the categories of industry, companies, or products. The menu link 360 may comprise a scrolling menu, list or similar directory. The search link 370 may have input fields along with a variety of searches utilizing various search methods. The search link may also direct the user to a search page (not shown). The map link 365 directs the user to a map page 385 that may take the form of an interactive map, image map, or conventional formatted text directory. The interactive map functions according to the disclosure of the aforementioned interactive map concept.

In Fig. 7, the industry page 390 may contain a directory or map of the companies within that particular industry. It may also accommodate information regarding the respective industry. The menu link on this industry page 390 may be reduced to the categories of companies and products, in order to aid the user in narrowing their search. The company page 395 and product page 400 may work in a very similar fashion. In addition to a homepage 345, an about page 350, a map page 365, and a register page 355, the online convention may embody at least one and perhaps many industry pages, company pages, and product pages.

Another example of the invention is a system and method for purchasing objects such as products over a computer network such as the Internet or other type of computer network. In this example, a potential customer may view, on the remote computer 100,

Fig. 1, the functional operation of a product offered for sale on a website. The functional operation of the product is displayed in either interactive real-time animation and/or full motion video which the potential customer may manipulate in a fashion similar to the real world operation of the product. The functional operation of the object display is produced from the digitized model of the object described above. If the potential customer is satisfied with the operation of the product, the potential customer then transmits a request to purchase the product by selecting appropriate options displayed on the website and inputting customer information (such as inputting name, a credit card number, shipping address, etc.). The website receives the purchase request and if accepted transmits a confirmation of sale back to the potential customer. The website may be controlled by a distributing, manufacturing, or service provider business.

The service provider business may be a business that provides a common website to sell the products of different manufactures and distributors such as described above in the online convention example and/or a business that produces and provides the animation and/or full motion video corresponding to the functional operation of the object.

If the service provider business provides a common website to sell the products of different manufactures and distributors, the potential customer is able to evaluate multiple products for operation and price. The potential customer is also able to compare one product to another. As an example, if a potential customer purchases a product from the service provider business, the service provider business then bills the manufacture or distributor that sells the product for a service fee.

If the potential customer decides to purchase one or more of the displayed products, the potential customer transmits, from the remote computer 100 and via the computer network 105, a request to purchase. Once the request is received and accepted by the service provider business, the service provider business transmits a confirmation of sale to the potential customer and bills the business providing the product a service fee.

As another example, if the product for sale is displayed on a manufacturer or distributor business' (client business) website that uses a service provider business that produces and provides the animation and/or full motion video corresponding to the function operation of the product, the website may contain a selectable target 180 (such as a link command) that re-directs the remote computer 100 to the main server 145 of the

service provider business. Once this target 180 is selected by the potential customer, the remote computer 100 is connected to the main server 145 and the animation and/or full motion video information about the operation of the product is transmitted to the remote computer 100. Additionally, a trace signal may be transmitted to the remote computer 100.

5 The trace signal creates a file (such a "cookie file") on the remote computer 100 that contains information about the potential customer and the viewed product. The manufacturer or distributor business' website may then selectively check the remote computer 100 for any trace files. If a trace file is found that contains information about a viewed product that was functionally described by the service provider business, the
10 manufacturer or distributor business forwards a service fee to the service provider business. Alternatively, the service provider may count the number of potential customers or track any information that the potential customers may supply (either through direct input from the potential customer or the trace signal), and bill manufactures or suppliers fees according to this gathered information.

15 As would be understood by those skilled in the art, the above described examples of the system allow the implementation of a process that allows business to display the functional operation of their products over a computer network, such as the Internet. The process additionally allows a service provider to host numerous products from numerous businesses on one server system (or server systems, if the service provider use multiple
20 computers) such as a website controlled by the service provider. Those skilled in the art appreciate the advantages of businesses using the website of a service provider to sell their products. As an example of some of these advantages, the businesses save costs through: (1) economy of scale; (2) not having to hire employees to animate the functional operation of their products; (3) not having to maintain an employee workforce sophisticated enough
25 to maintain the website; (4) not having to support the cost maintaining a server system capable of animating their products; etc.

As an example of this process, the service provider receives an object model, from at least one business, for display on the service provider's server. The object model may be of any type previously described. The service provider creates visual information from the
30 object model provided by the business on its server (such as server sub-system 115, Fig. 1). The service provider creates the visual information by inputting the object model into a

computer system, identifying at least a sub-model of the object model that corresponds to the function part of the object, and animating the sub-model to correspond to the function operation of the object. The service provider then creates animation data that corresponds to the animated sub-model and transmits the animated data to storage device on the service
5 provider server. As described above the visual information may selectively include animation information and/or full motion video corresponding to the functional operational of the object.

If the speed of generating the visual information is an issue, the service provide may selective employ optimized computer systems (such as an animation or full motion video
10 server) to generate the visual information for an added service fee. The optimized computer system are computer systems that have been optimized for processing graphical information such as animation or full motion video.

The service provider then hosts the visual information on its server and links the business server (such as the client server 110, Fig. 1) and/or the remote computer 100 to
15 the service provider server (such as hosting a website) containing the visual information. The service provider may selective charge a service fee to the business for these services.

A potential customer would then link, using the remote computer 100, to the website hosted by the service provider and view the objects/products offered on the website. The potential customer may then selective choose to purchase one of the products
20 by transmitting a purchase request to the service provider which would then selectively accept the request. Once the request was accepted, the service provider would transmit to the potential customer a confirmation of sale in response to the potential customer's request.

As described above, the service provider may also transmit a trace signal (such as a
25 cookie file) to the remote computer 100. The trace signal would contain information that indicates the potential customer's activity on the service provider's website which may be used to track whether the potential customer purchase the object/product after viewing its functional operation on the service provider's server. Additionally, business using the service provider services may be required to search for the existence and content of any
30 trace signals on potential customers that access their respective websites. In this way, the business would pay a service fee to the service provider if a potential customer's remote

computer 100 possessed a trace signal that indicated that the potential customer had viewed the functional operation of the object prior to purchasing the object.

It is also appreciated that the business and/or service provider may also selectively create a software link (such as target 180) that would link a website from the business to the server of the service provider in response to an input device. This link would allow the remote computer 100 to be re-directed from the business' website to the server of the service provider. The service provider would then transmit the visual information (such as animation and/or full motion video) to remote computer 100 that would then display the visual information on an associated display device such as a computer display monitor.

Fig. 8 shows one exemplary user interface for generating leads for third party vendors and providing an accounting to the system for generating such leads. In particular, product names (and associated manufacturer names (optional)) may be put in a table and associated with unique links for each product. These links allow the user to make comments with respect to the associated product, request purchase information with respect to the associated product, request product information with respect to the associated product, request company information with respect to the associated company, view the graphics or delete the product from the list. As shown, once a link for a respective product is used that link is "disabled." In this way, a consumer can only request product or company information once. This allows the company and the website administrator to more appropriately track interest generated for a particular product from the website. Using this information, the website can seek compensation for each click-through with some confidence that they are not double reporting leads. Similarly, once a user has made comments on a product, that user can no longer make comments, but instead may only read the comments of others.

The request for purchase, product and/or company information may be provided to the company via instant messaging, email or other communications protocol. The status of various buttons may be saved on the server (Fig. 1, reference number 115) for each user or by using client-side data, such as a cookie.

This list may also be shared with third parties either individually or in groups. In this manner, the list may be used by salespeople to display an entire new line of products. The list can then be shared, as such, rather than conducting a door-to-door sales trip.

Similarly, a professor could make a anatomical review list to which answers are expected in which case the company link would be to an individual (the professor) or institution (e.g. college).

While the specification in this invention is described in relation to certain

- 5 implementations or embodiments, many details are set forth for the purpose of illustration. Thus, the foregoing merely illustrates the principles of the invention. For example, this invention may have other specific forms without departing from its spirit or essential characteristics. The described arrangements are illustrative and not restrictive. To those skilled in the art, the invention is susceptible to additional implementations or embodiments
- 10 and certain of the details described in this application can be varied considerably without departing from the basic principles of the invention. It will thus be appreciated that those skilled in the art will be able to devise various arrangements which, although not explicitly described or shown herein, embody the principles of the invention are thus within its spirit and scope.

What is claimed:

1. A method for displaying the operation of an object on a remote computer via a computer network, the method comprising the steps of:

accepting connection of the remote computer to a main server via the computer
5 network, the main server containing selectable information relating to the object including visual information of the operation of the object;

selecting the visual information of the product on the main server with the remote computer; and

transmitting the visual information of the object from the main server to the remote
10 computer via the computer network.

2. The method of claim 1 further includes the step of displaying the visual information of the object on the remote computer.

3. The method of claim 1 wherein the visual information of the operation of the object selectively includes animation information of the operation of the object and full
15 motion video information of the operation of the object.

4. The method of claim 3 wherein the step of selecting the visual information of the object further includes the steps of

connecting the main server to an animation server, the animation server being a server optimized for processing animation and containing animation information of the
20 operation of the object, and

transmitting the animation information of the object from the animation server to the remote computer.

5. The method of claim 4 wherein the server is software.

6. The method of claim 3 wherein the step of selecting the visual information
25 of the object further includes the steps of

connecting the main server to a full motion video server, the full motion server being a server optimized for full motion video and containing full motion video information of the operation of the object, and

transmitting the full motion video information of the object from the full motion
30 video server to the remote computer.

7. The method of claim 1 wherein the step of connecting the remote computer

further includes the steps of

connecting the remote computer to a client server, the client server containing selectable information relating to the object including a computer network link command corresponding to the selection of visual information of the operation of the object,

5 selecting the visual information of the object on the client server with the remote computer, and

connecting the remote computer to the main server via the computer network using the computer network link command.

8. The method of claim 1 wherein the object is selectively testable and fully
10 emulated software.

9. A system for displaying the operation of an object on a remote computer via a computer network comprising:

a main server containing selectable information relating to the object including visual information of the operation of the object, the remote computer connected to the
15 main server via the computer network;

means for selecting the visual information of the object on the main server with the remote computer; and

means for transmitting the visual information of the object from the main server to the remote computer via the computer network.

20 10. The system of claim 9 further includes means for displaying the visual information of the object on the remote computer.

11. The system of claim 9 wherein the visual information of the operation of the object selectively includes animation information of the operation of the object and full motion video information of the operation of the object.

25 12. The system of claim 11 wherein the selecting means further includes means for connecting the main server to an animation server, the animation server being a server optimized for processing animation and containing animation information of the operation of the object, and

means for transmitting the animation information of the object from the animation
30 server to the remote computer.

13. The system of claim 12 wherein the server is software.

14. The system of claim 11 wherein the selecting means further comprising means for connecting the main server to a full motion video server, the full motion video server being a server optimized for full motion video and containing full motion video information of the operation of the object, and

5 means for transmitting the full motion video information of the object from the full motion server to the remote computer.

15. The system of claim 9 wherein the selecting means further comprises means for connecting the remote computer to a client server, the client server containing selectable information relating to the object including a computer network link command corresponding to the selection of visual information of the operation of the object,

means for selecting the visual information of the object on the client server with the remote computer, and

means for connecting the remote computer to the main server via the computer network using the computer network link command.

16. The system of claim 9 wherein the object is selectively testable and fully emulated software.

17. A method for selling at least one object having a functional operation over a computer network, the method comprising the steps of:

20 receiving an object model, from a business, for display on a server;

creating visual information from the object model;

hosting the visual information on the server; and

linking a second server, associated with the business, to the visual information.

18. The method of claim 17 further including the step of receiving a service fee from the client for hosting the visual information.

19. The method of claim 17 wherein the visual information selectively includes animation information and full motion video corresponding to the functional operation of the object.

20. The method of claim 17 wherein the step of receiving further includes receiving the object model from a plurality of clients.

21. The method of claim 17 wherein the step of creating further includes the

steps of

inputting the object model into a computer system,

identifying at least one sub-model of the object model, the at least one sub-model corresponding to a functional part of the object, and

5 animating the at least one sub-model to correspond to the functional operation of the object.

22. The method of claim 21 wherein the step of animating further includes the steps of

creating animated data corresponding to the animated at least one sub-model, and

10 transmitting the animated data to a storage device on the server managed by the service provider, the server in signal communication with a remote computer via the computer network.

23. The method of claim 22 further including the steps of

creating a selectable software link between the animated data on the server and the

15 remote computer,

transmitting the animated data from the server to the remote computer in response to selection of the software link, and

displaying the animated data on the remote computer.

24. The method of claim 23 wherein the animated data is full motion video.

20 25. The method of claim 23 wherein the software link is capable of being selected with an input device connected to the remote computer.

26. The method of claim 17 wherein the step of creating further includes the step of connecting the server to an animation server, the animation server being a server optimized for processing animation and containing animation information of the operation
25 of the object.

27. The method of claim 17 wherein the step of creating further includes the step of connecting the server to a full motion video server, the full motion video server being a server optimized for processing full motion video and containing full motion video information of the functional operation of the object.

30 28. The method of claim 26 or 27 further including assessing an optimized server fee to the client.

29. The method of claim 17 further including the steps of receiving a request, from the remote computer, for visual information, and transmitting a trace signal to the remote computer in response to the request.

30. The method of claim 29 further including the steps of receiving, from the remote computer, a request to purchase the object, accepting the request to purchase the object, and transmitting a confirmation of sale in response to accepting the request.

31. A method for animating the operation of at least one functional part of an object, the method comprising the steps of:

inputting a digitized model into a computer system;
identifying at least one sub-model of the digitized model corresponding to the at least one functional part of the object;
creating animated data of the at least one sub-model corresponding to the operation of the at least one functional part of the object;
transmitting the animated data to a remote computer in signal communication with the computer system.

32. The method of claim 31 further including the steps of creating a selectable software link between the animated data on the server system and the network interface on the remote computer,

transmitting the animated data from the server system to the network interface on the remote computer in response to selection of the software link, and displaying the animated data on the remote computer.

33. The method of claim 32 wherein the software link is capable of being selected with an input device connected to the remote computer.

34. A system for animating the operation of at least one functional part of an object comprising:

means for providing a digital model;
a computer system for processing the digitized model;
means for identifying at least one sub-model of the digitized model corresponding to the at least one functional part of the object; and
means for animating the at least one sub-model to correspond to the operation of

the at least one functional part of the object.

35. The system of claim 34 further comprising

a storage device on a server system, the server system in signal communication with a remote computer via a computer network,

5 means for creating animated data corresponding to the animated at least one sub-model, and

means for transmitting the animated data to the storage device.

36. The system of claim 35 further comprising

10 means for creating a selectable software link between the animated data on the server system and the network interface on the remote computer,

means for transmitting the animated data from the server system to the network interface on the remote computer in response to selection of the software link, and

a display for displaying the animated data on the remote computer.

37. The system of claim 36 wherein the software link is capable of being

15 selected with an input device connected to the remote computer.

38. A method for purchasing an object having a functional operation, the method comprising the steps of:

viewing, using a computer, visual information corresponding to the functional operation of the object;

20 transmitting, using a computer, a request to purchase the object in response to viewing the visual information;

accepting the request to purchase the object; and

receiving, at a time subsequent to the accepting of the request to purchase the object, a confirmation of sale.

25 39. The method of claim 38 wherein the step of viewing further includes

connecting the computer to a main server via a computer network, the main server containing selectable information relating to the object including visual information of the operation of the object;

selecting the visual information of the product on the main server with the

30 computer; and

transmitting the visual information of the object from the main server to the

computer via the computer network.

40. The method of claim 39 wherein the visual information of the operation of the object selectively includes animation information of the operation of the object and full motion video information of the operation of the object.

5 41. The method of claim 40 wherein the step of selecting the visual information of the object further includes the steps of

connecting the main server to an animation server via the computer network, the main server being a server optimized for processing animation and containing animation information of the operation of the object, and

10 transmitting the animation information of the object from the animation server to the main server via the computer network.

42. The method of claim 40 wherein the step of selecting the visual information of the object further includes the steps of

15 connecting the main server to a full motion video server via the computer network, the main server being a server optimized for full motion video and containing full motion video information of the operation of the object, and

transmitting the full motion video information of the object from the animation server to the main server via the computer network.

20 43. The method of claim 38 wherein the step of viewing further includes the steps of

connecting the computer to a client server, the client server containing selectable information relating to the object including a computer network link command corresponding to the selection of visual information of the operation of the object,

25 selecting the visual information of the object on the client server with the computer, and

connecting the computer to a main server via the computer network using the computer network link command, the main server containing selectable information relating to the object including visual information of the operation of the object.

44. The method of claim 43 wherein the object is testable software.

30 45. A method for selling at least one object having a functional operation via a computer network to a remote computer of a potential customer, the method comprising

the steps of:

transmitting, using a computer, visual information of the functional operation of the at least one object to the remote computer;

receiving from the remote computer, a request to purchase the at least one object in response to transmitting the visual information;

accepting the request to purchase the at least one object; and
transmitting a confirmation of sale in response to accepting the request.

46. The method of claim 45 further including the steps of

inputting a model of the at least one object on the computer, and

producing visual information of the operation of the at least one object from the model.

47. The method of claim 46 wherein the model is at least one file from an engineering program.

48. The method of claim 47 wherein the step of producing further includes animating a set of functional controls selectively in two-dimensional and three-dimensional animation for the visual information, the functional controls corresponding to the functional operation of the object.

49. The method of claim 46 wherein the visual information of the operation of the at least one object selectively includes animation information of the operation of the object and full motion video information of the operation of the object.

50. The method of claim 45 wherein the step of transmitting the visual information further includes the steps of

connecting the remote computer to an animation server via the computer network, the animation server being a server optimized for processing animation and containing animation information of the operation of the object, and

transmitting the animation information of the at least one object from the animation server to the remote computer via the computer network.

51. The method of claim 45 wherein the step of transmitting the visual information further includes the steps of

connecting the remote computer to a full motion video server via the computer network, the full motion video server being a server optimized for processing full motion

video and containing full motion video information of the operation of the object, and
transmitting the full motion video information of the at least one object from the full
motion video server to the remote computer via the computer network.

52. A method for selling objects having a functional operation via a computer
5 network to a remote computer of a potential customer, the method comprising the steps of:
transmitting, using a computer, visual information of the functional operation of a
plurality of objects to the remote computer;

transmitting, using the computer, data to the remote computer, the data containing
price information corresponding to the plurality of objects;

10 receiving from the remote computer, a request to purchase at least one of the
plurality of objects;

accepting the request to purchase the at least one object; and

transmitting a confirmation of sale in response to accepting the request.

53. A method for selling objects having a functional operation via a computer
15 network to a remote computer of a potential customer, the method comprising the steps of:
receiving, using a computer, a request for visual information of the functional
operation of an object from a computer operated by a client business;

transmitting, using a computer, the visual information to the remote computer; and

transmitting, using a computer, a trace signal to the remote computer.

20 54. The method of claim 53 further including the step of receiving at the remote
computer a confirmation signal from the client computer.

55. The method of claim 53 further including the step of receiving a service fee
from the client business.

56. A method for teaching the use of an object having a functional operation,
25 the method comprising the steps of:

transmitting a request from a first computer to a second computer, wherein the
request is for information of the functional operation of the object;

receiving, using the first computer, visual information corresponding to the
functional operation of the object; and

30 interacting with the visual information using the first computer.

57. A method for selling at least one object having a functional operation from a

server having a website, via a computer network, to a remote computer of a potential customer, the method comprising the steps of:

creating an interactive map of the website;

transmitting, from the server, visual information of the functional operation of the at

5 least one object to the remote computer;

receiving from the remote computer, a request to purchase the at least one object in response to transmitting the visual information;

accepting the request to purchase the at least one object; and

transmitting a confirmation of sale in response to accepting the request.

10 58. The method of claim 57 wherein the step of creating further includes creating a frame that is visually perceivable in the website, providing a plurality of interactive selectable controls in the frame, providing access to information of the object in response to selection of a sub-

15 plurality of the controls, and linking the remote computer to another website in response to selection of another sub-plurality of the controls.

59. A method for displaying the operation of an object on a remote computer via a computer network, the method comprising the steps of:

20 accepting connection of the remote computer to a main server via the computer network, the main server containing selectable information relating to the object including visual information of the operation of the object;

selecting, in a constrained order, the visual information of the product on the main server with the remote computer; and

25 transmitting the visual information of the object from the main server to the remote computer via the computer network.

60. The method of claim 59 further includes the step of displaying the visual information of the object on the remote computer.

30 61. The method of claim 59 wherein the visual information of the operation of the object selectively includes animation information of the operation of the object and full motion video information of the operation of the object.

62. The method of claim 61 wherein the step of selecting the visual information

of the object, in a constrained order, further includes the steps of

connecting the main server to an animation server, the animation server being a server optimized for processing animation and containing animation information of the operation of the object, and

5 transmitting the animation information of the object from the animation server to the remote computer.

63. The method of claim 62 wherein the step of selecting the visual information of the object further includes selecting predefined views of the object.

64. The method of claim 63 wherein the step of selecting the visual information
10 of the object further includes looping through the predefined views of the object.

65. The method of claim 59 wherein the step of selecting the visual information of the object further includes selecting predefined views of the object.

66. The method of claim 65 wherein the step of selecting the visual information of the object further includes looping through the predefined views of the object.

15 67. A system for displaying the operation of an object on a remote computer via a computer network comprising:

a main server containing selectable information relating to the object including visual information of the operation of the object, the remote computer connected to the main server via the computer network;

20 means for constraining an ordering in which the visual information of the operation of the object can be selected;

means for selecting the visual information of the object on the main server with the remote computer; and

25 means for transmitting the visual information of the object from the main server to the remote computer via the computer network.

68. The system of claim 67 further including means for tracking unique leads associated with the object.

69. The system of claim 67 further including means for creating a list of objects.

70. A method for animating the operation of at least two functional parts of an
30 object, the method comprising the steps of:

inputting a digitized model into a computer system;

identifying at least two sub-models of the digitized model corresponding to each of the at least two functional parts of the object;

creating animated data of the at least two sub-models corresponding to the operation of each of the at least two functional parts of the object;

5 constraining the order in which the animated data can be actuated; and

transmitting the animated data to a remote computer in signal communication with the computer system.

71. The method of claim 70 further including the steps of

creating a selectable software link between the animated data on the server system

10 and the network interface on the remote computer,

transmitting the animated data from the server system to the network interface on the remote computer in response to selection of the software link, and

displaying the animated data on the remote computer.

72. The method of claim 71 wherein the software link is capable of being

15 selected with an input device connected to the remote computer.

73. The method of claim 70 further comprises associating text with one of the at least two sub-models of the digitized model, such that upon transmission of the animated data, the associated text is also transmitted.

74. A method for teaching the manipulation of an object, the method comprising

20 the steps of:

transmitting a request from a first computer to a second computer, wherein the request is for information of the functional operation of the object;

receiving, using the first computer, visual information corresponding to the functional operation of the object; and

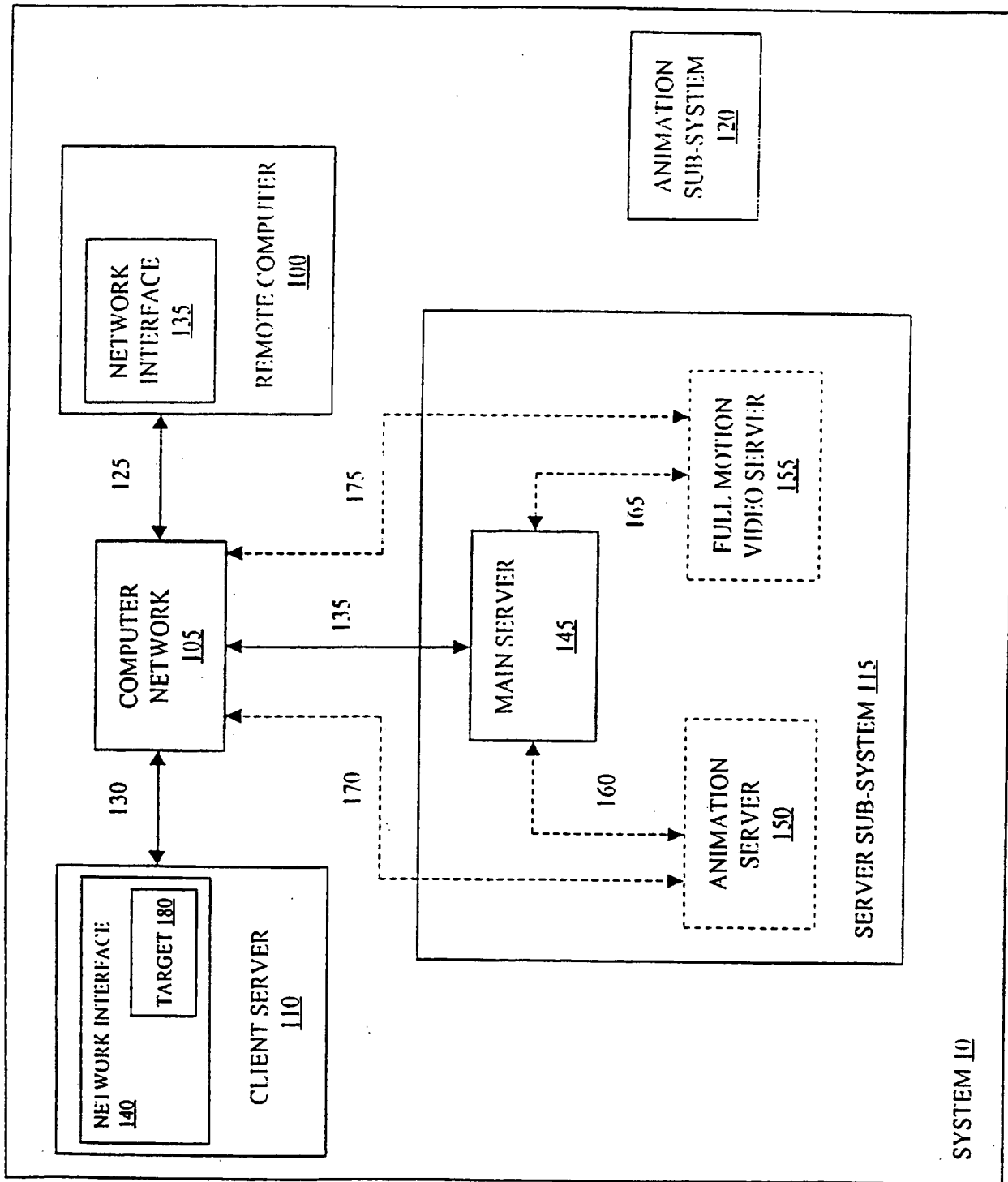
25 interacting with the visual information using the first computer in a constrained order.

75. The method of claim 74 further including looping through the predefined views of the object.

76. The method of claim 74 further including providing textual instructions and

30 linking the visual information to some of the textual instruction.

Fig. 1



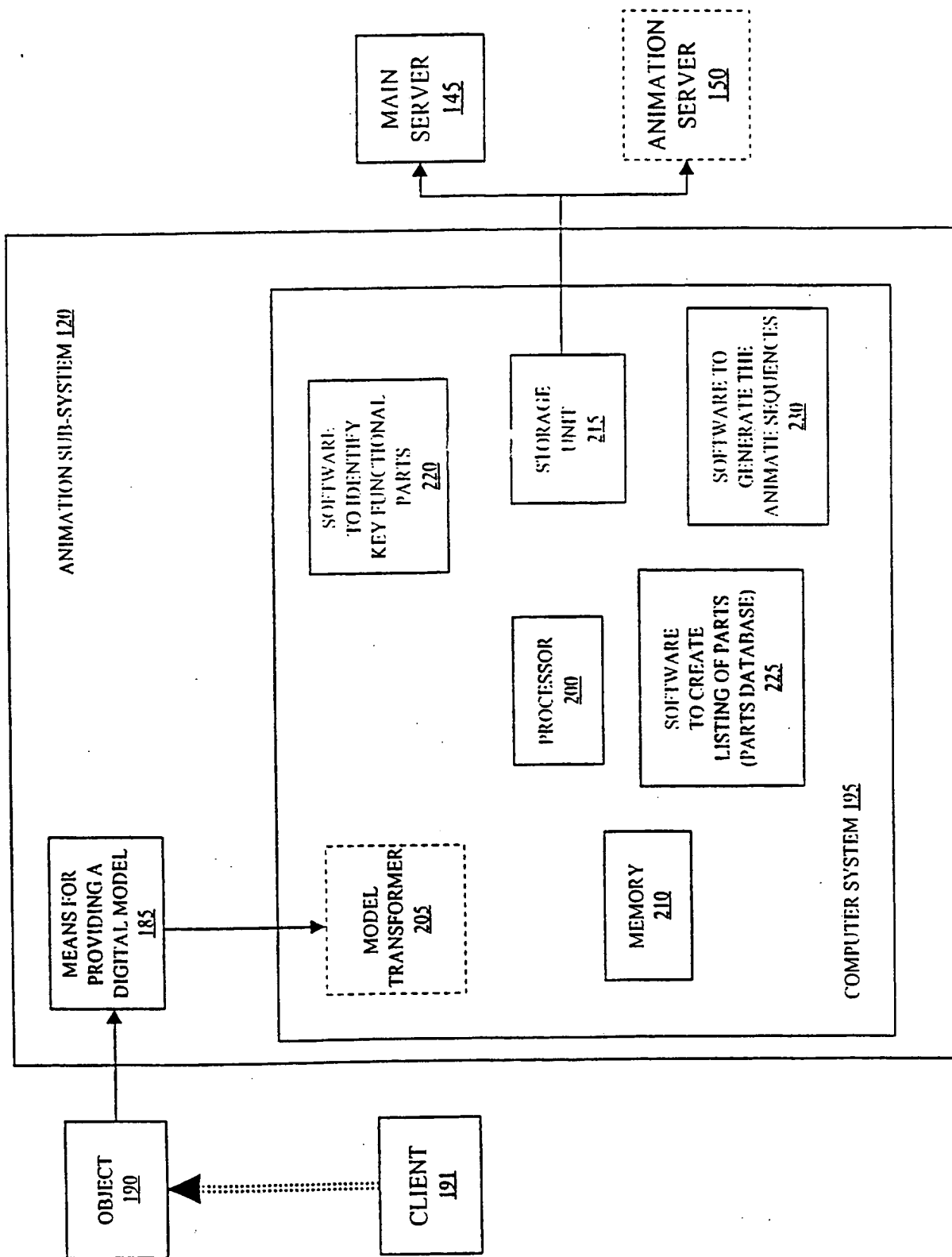


Fig. 2

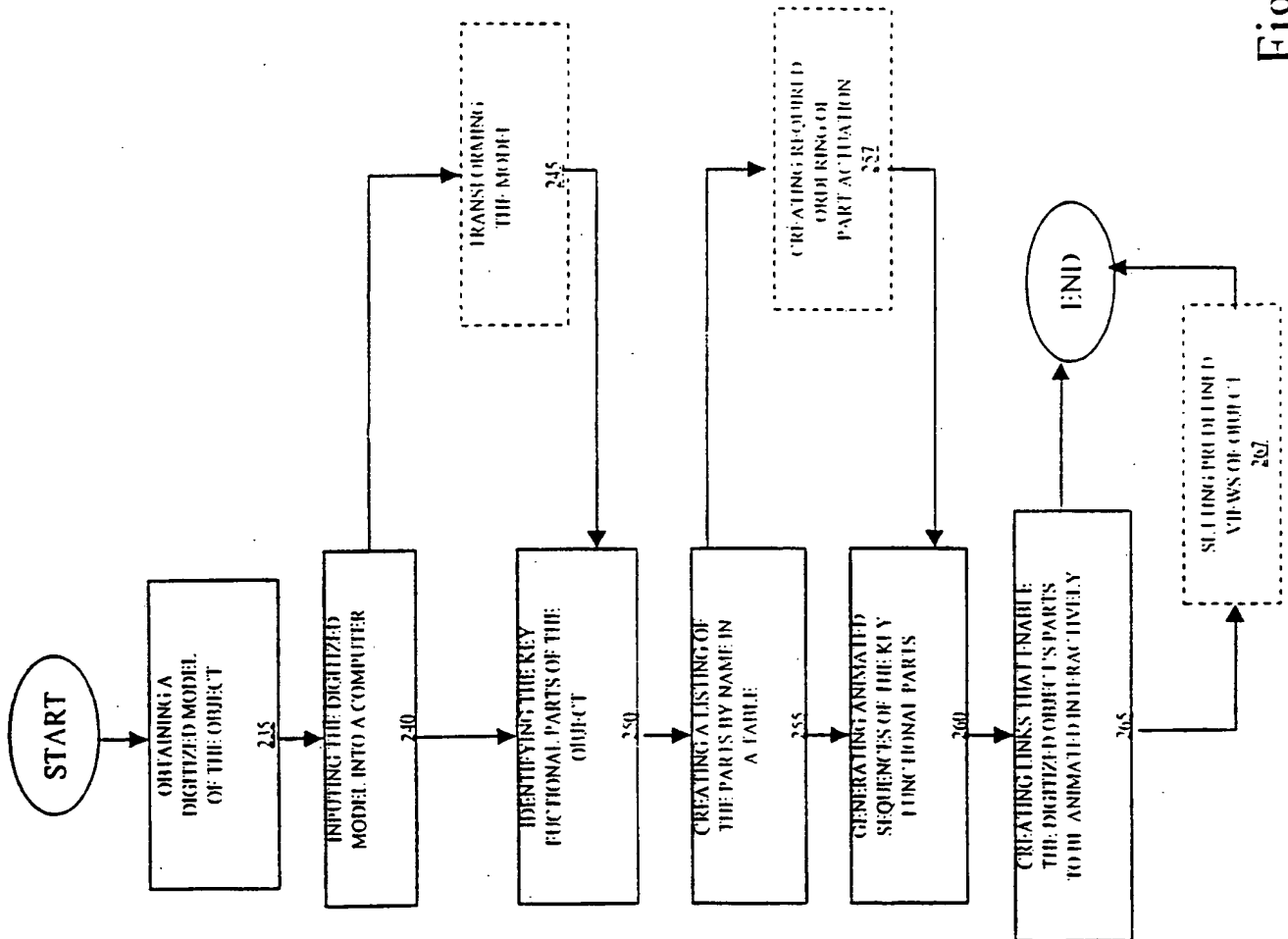
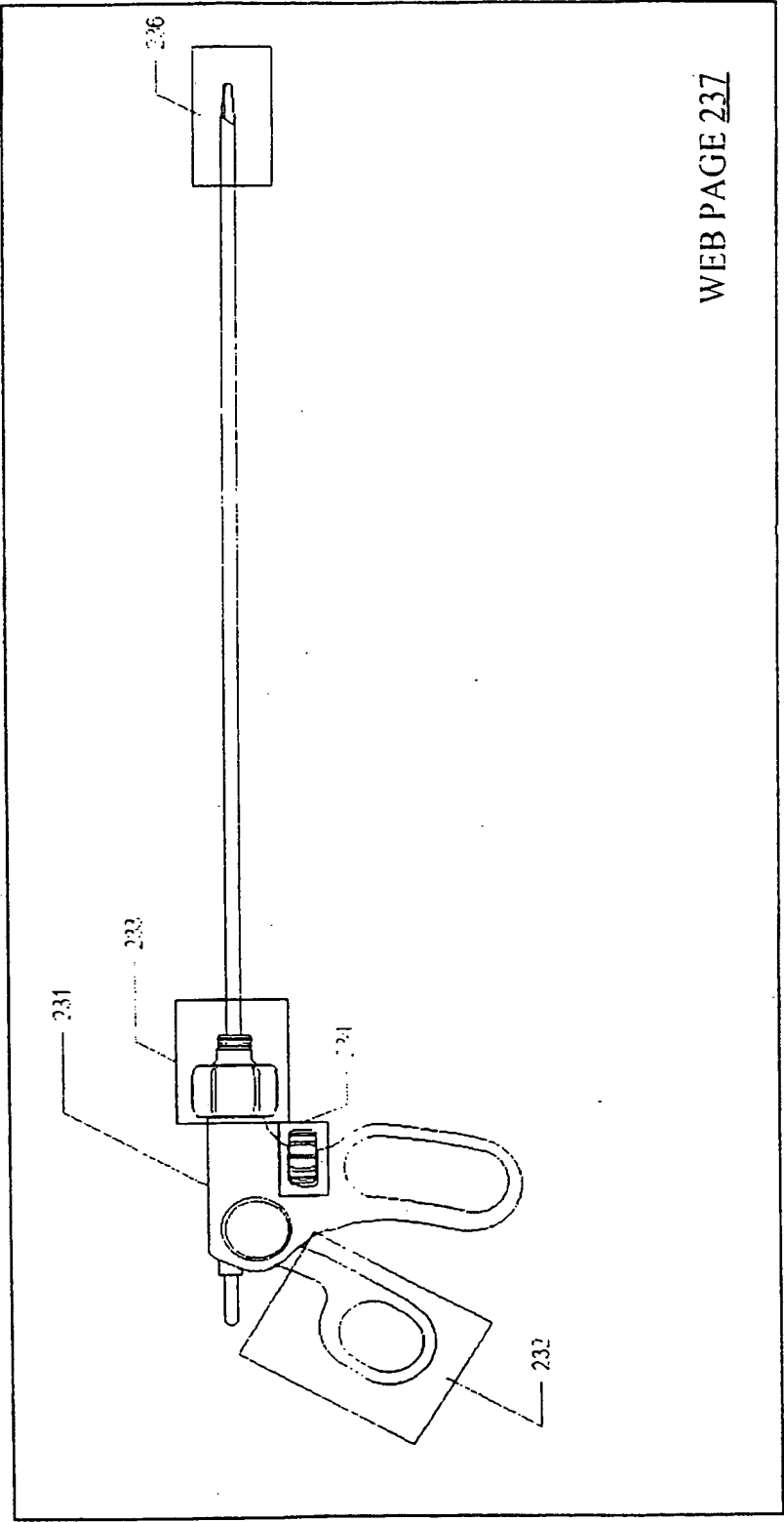


Fig. 3



WEB PAGE 237

Fig. 4

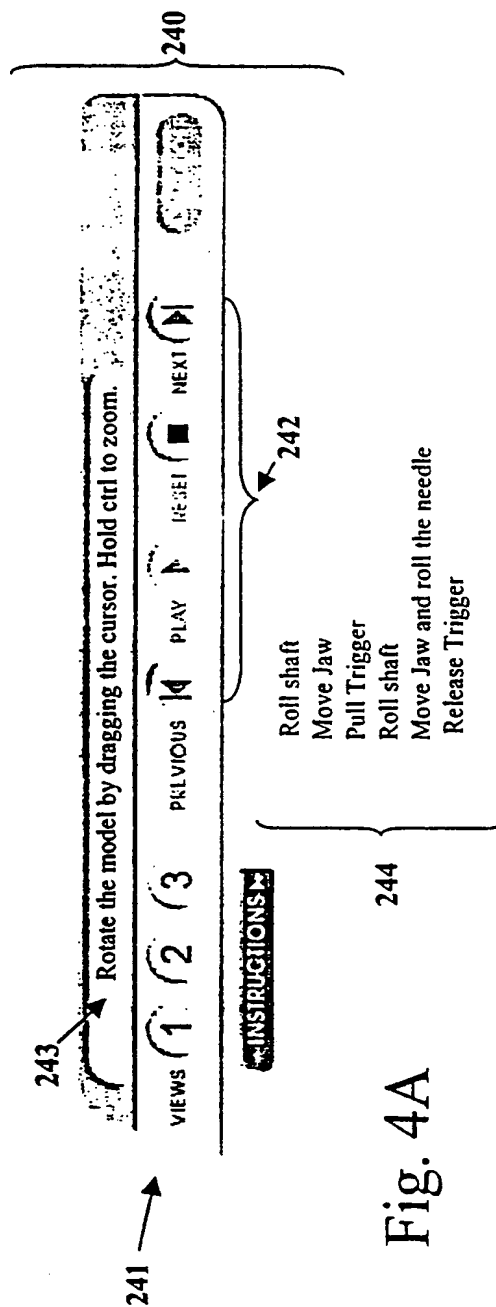
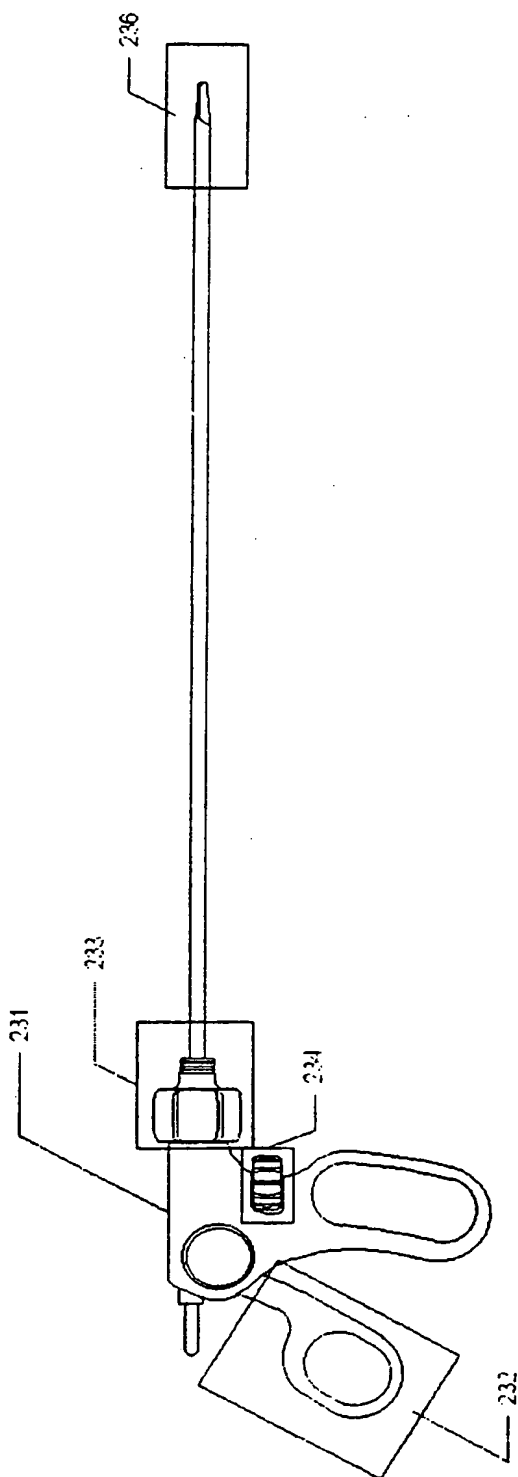


Fig. 4A

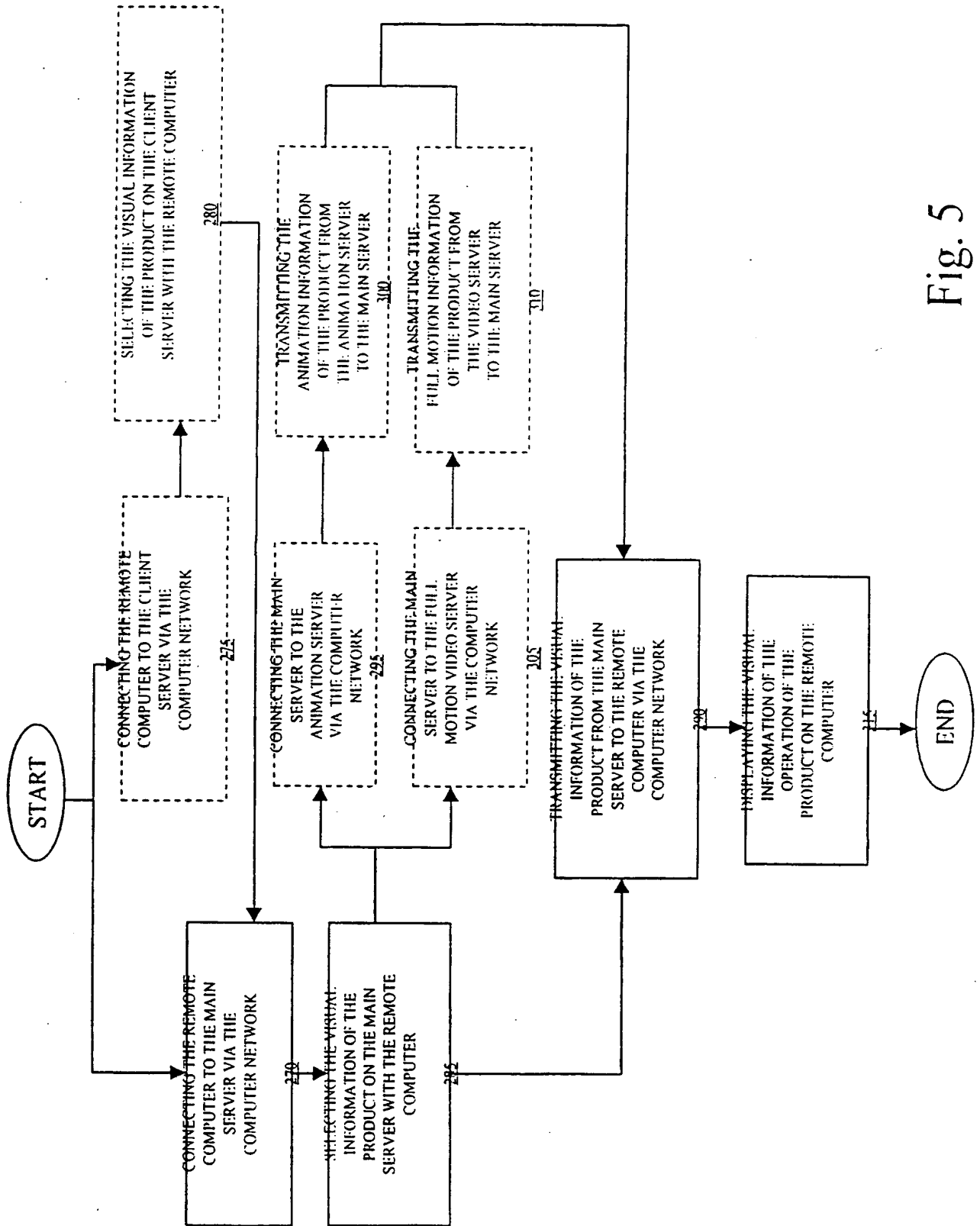


Fig. 5

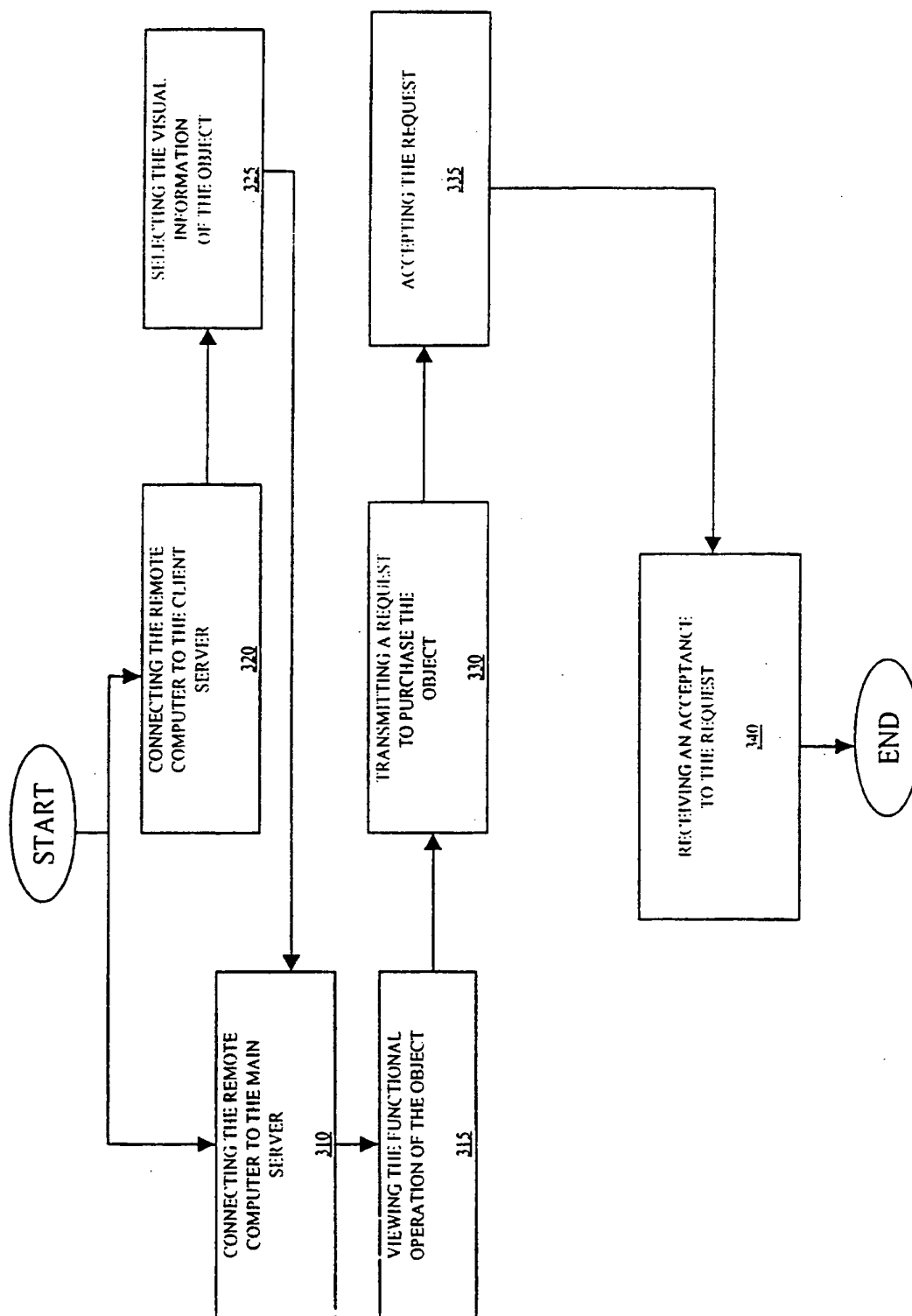


Fig. 6

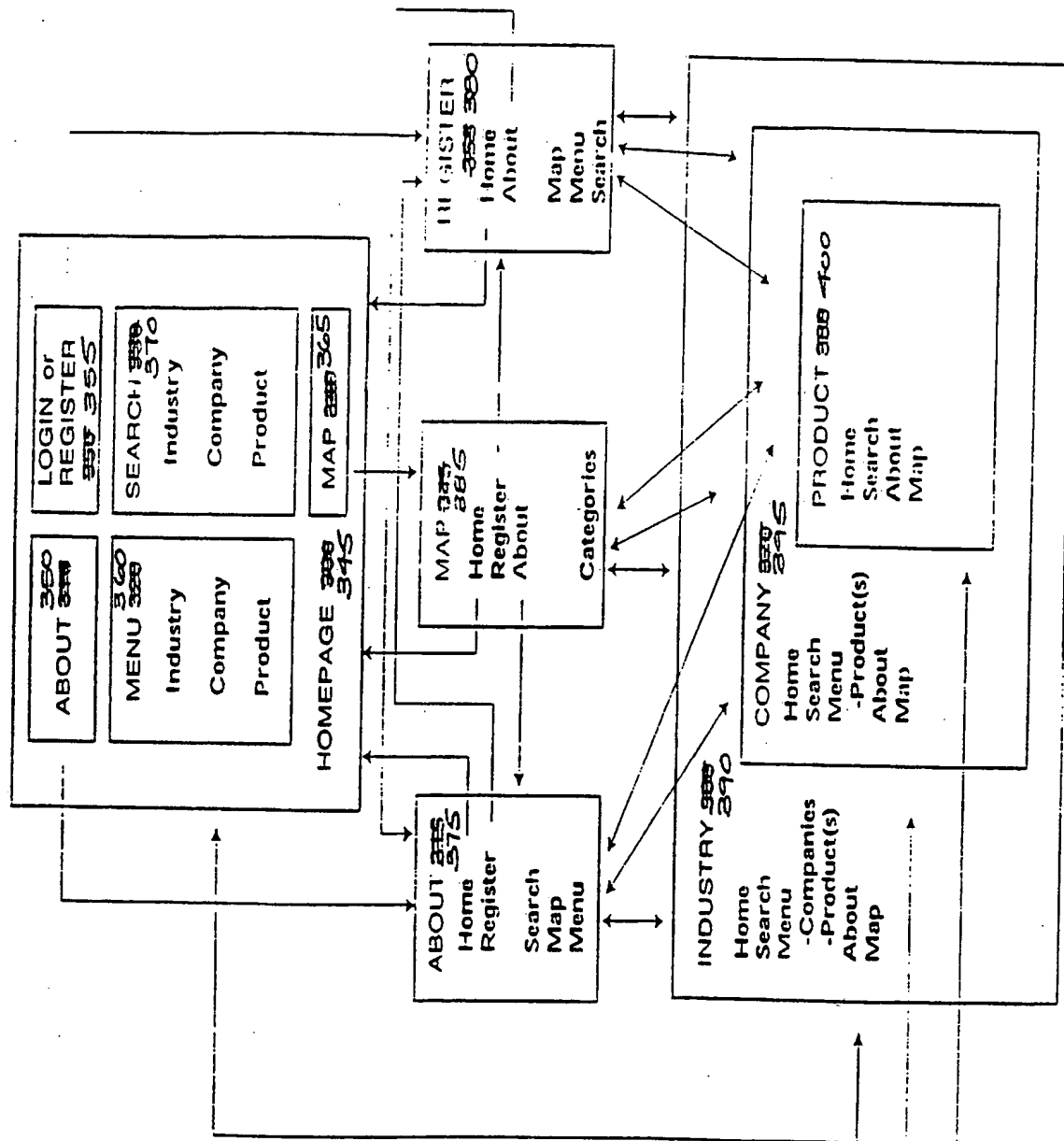


Fig. 7

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US00/32199

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) :G06F 17/60

US CL :705/ 8, 26

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 705/ 8, 26

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EAST

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5,550,735 A (SLADE et al) 27 August 1996, see the entire document.	1-76
X	US 5,819,092 A (FERGUSON et al) 06 October 1998, see the whole document.	1-76

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

* Special categories of cited documents:	*T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
A document defining the general state of the art which is not considered to be of particular relevance	*X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
E earlier document published on or after the international filing date	*Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
L document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	*Z* document member of the same patent family
O document referring to an oral disclosure, use, exhibition or other means	
P document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search

12 JANUARY 2001

Date of mailing of the international search report

29 MAR 2001

Name and mailing address of the ISA/US
Commissioner of Patents and Trademarks
Box PCT
Washington, D.C. 20231

Facsimile No. (703) 308-5401

Authorized officer

WALTER MALINOWSKI

Telephone No. (703) 308-3172